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Microviscosity of an aqueous chloroplast medium in conditions of a water deficit

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Abstract

From the parameters of the e.s.r. spectra the authors have found the correlation times of rotational diffusion (τc) of the nitroxyl radical 2,2,6,6-tetramethyl-4-oxopiperidine-1-oxyl introduced into chloroplasts isolated from the leaves of Moskovskaya-35 wheat. It was found that the water deficit of the leaves has little influence on the microviscosity of the aqueous medium of the chloroplasts as long as it remains below a certain critical level. It was established that for a water deficit above critical the chloroplast membranes begin to be destroyed and microviscosity increases. This pattern was found in the 10-30 °C interval. Study of the temperature dependence of the spectra revealed lengthening of the τc time at 25 °C.